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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/538,136

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Takeshi Kimura

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EXAMINER

SINCLAIR, DAVID M

ART UNIT

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2831

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/538,136	Applicant(s) KIMURA ET AL.	
	Examiner DAVID M. SINCLAIR	Art Unit 2831	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 February 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 4-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 4-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 June 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the “conductive paste”, “conductive particles”, “conductive powder”, and “resin” must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 1-2 and 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over MT_Shioya in view of Ogawa et al (4,400,214).

In regards to claim 1,

MT_Shioya discloses a multilayer ceramic electronic part having an external electrode (3 – see fig.1) formed from a thermosetting conductive paste ([0010] – a thermosetting resin would make the conductive paste thermosetting) comprising conductive particles (4 – see fig. 1) having a high melting point ([0009]), metal powder (5 – see fig. 1) having a melting point of 300 °C or less ([0013] – teaches indium or tin as the surface substance both elements have a melting point of less than 300 °C) and a resin(s) (6 – see fig. 1). MT_Shioya fails to teach the metal powder having a melting point of 300 °C or less is present in

an amount by weight based on the total weight of said conductive particles having a high melting point and said metal powder having a melting point of 300 °C or less, of from of 5% to 17.6%.

Ogawa '214 teaches a conductive paste used to make capacitor termination (abstract) comprising a conductive alloy powder composed of high melting point metals and metal with a melting point of 300 °C or less wherein the weight percent of the metal having a melting point of 300 °C or less based on the total weight of said conductive particles having a high melting point and said metal powder having a melting point of 300 °C or less, is from of 5% to 17.6% (table 2 – alloy powder no. 17 – teaches 5% Sn).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the weight percent of Sn as disclosed by Ogawa '214 with the conductive paste of MT_Shioya to obtain an external electrode that is more solderable while preventing the lowering of the resistance against thermo-oxidation caused by a large weight percent of Sn as taught by Ogawa '214 (column 3 – lines 38-40).

In regards to claim 2,

The references as applied above teach all the limitations of claim 2 except the total content of said conductive particles having a high melting point and said

metal powder having a melting point of 300 °C or less in said thermosetting conductive paste is in the range of 70 to 95% by weight relative to the total weight of said conductive particles having a high melting point, said metal powder having a melting point of 300 °C or less, and said resin. However, MT_Shioya further teaches the total content of said conductive particles having a high melting point and said metal powder having a melting point of 300 °C or less in said thermosetting conductive paste is in the range of 70 to 95% by weight relative to the total weight of said conductive particles having a high melting point, said metal powder having a melting point of 300 °C or less, and said resin ([0014] – the conductive portion (conductive powder and conductive particles) is 100 weight parts and the resin is 30 weight parts therefore the conductive portion compose 76.9% by weight relative to the total weight of said conductive particles having a high melting point, said metal powder having a melting point of 300 °C or less, and said resin).

In regards to claim 4,

MT_Shioya teaches (1) providing a thermosetting conductive paste ([0010] – a thermosetting resin would make the conductive paste thermosetting) comprising conductive particles (4 – see fig. 1) having a high melting point ([0009]), metal powder (5 – see fig. 1) having a melting point of 300 °C or less ([0013] – teaches indium or tin as the surface substance both elements have a melting point of less than 300 °C) and a resin (6 – see fig. 1), and a ceramic composite body which is

to be provided with an external electrode ([0015]); (2) printing or applying said thermosetting conductive paste on or to a surface where an internal electrode of said ceramic composite body is led out ([0015]); and (3) maintaining said ceramic composite body obtained in the step (2) at a temperature of 80 °C to 400 °C for a period of one to sixty minutes so as to form the external electrode ([0015]).

MT_Shioya fails to teach the metal powder having a melting point of 300 °C or less is present in an amount by weight based on the total weight of said conductive particles having a high melting point and said metal powder having a melting point of 300 °C or less, of from of 5% to 17.6%.

Ogawa '214 teaches a conductive paste used to make capacitor termination (abstract) comprising a conductive alloy powder composed of high melting point metals and metal with a melting point of 300 °C or less wherein the weight percent of the metal having a melting point of 300 °C or less based on the total weight of said conductive particles having a high melting point and said metal powder having a melting point of 300 °C or less, is from of 5% to 17.6% (table 2 – alloy powder no. 17 – teaches 5% Sn).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the weight percent of Sn as disclosed by Ogawa '214 with the conductive paste of MT_Shioya to obtain an external electrode that is more solderable while preventing the lowering of the resistance against thermo-

oxidation caused by a large weight percent of Sn as taught by Ogawa '214 (column 3 – lines 38-40).

In regards to claim 5,

The references as applied above teach all the limitations of claim 5 except the conductive particle in said external electrode makes a diffused junction with a metal of said internal electrode of said multilayer ceramic composite body.

However, the combination of MT_Shioya and Ogawa '214 further teach the conductive particle in said external electrode makes a diffused junction with a metal of said internal electrode of said multilayer ceramic composite body (the diffused junction is caused by the method of manufacturing therefore the method taught by the combination of MT_Shioya and Ogawa '214 which teaches the method of claim 4 would inherently create a diffused junction between the internal and external electrodes).

In regards to claim 6,

The references as applied above teach all the limitations of claim 6 except the multilayer ceramic electronic part is selected from the group consisting of a capacitor, a capacitor array, a thermistor, a varistor, an LC composite part, a CR composite part, an LR composite part, and an LCR composite part. However, MT_Shioya further teaches the multilayer ceramic electronic part is selected from the group consisting of a capacitor, a capacitor array, a thermistor, a varistor, an

LC composite part, a CR composite part, an LR composite part, and an LCR composite part ([0001]).

Response to Arguments

4. Applicant's arguments filed 02/08/2007 have been fully considered but they are not persuasive.

In regards to claim 1 & 4,

Applicant argues allowability based on the amendments made to the above claims. The above argument is moot based on new grounds of rejection.

Applicant further argues that the structure claimed in the present application differs from the structure disclosed by MT_Shioya. Applicant argues that MT_Shioya teaches conductive paste comprising conductive particle having a high melting point being coated with a metal having a melting point of 300 °C or less forming the external electrode where as the applicant claims a conductive paste comprising conductive particles having a high melting point and metal powders having a melting temperature of 300 °C or less forming the external electrode. The examiner finds the above argument to be unpersuasive although the metal powder having a melting point of 300 °C or less coats the conductive particle having a high melting point this doesn't change the structure as claimed by the applicant (conductive paste comprising conductive particles with a high melting point, metal powder with a melting point of 300 °C or less, and a resin).

In regards to claim 2 and 5-6,

Applicant argues allowability solely on the claims dependency of independent claims 1 and 4. Claims 1 and 4 stand rejected.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Communication

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAVID M. SINCLAIR whose telephone number is (571)270-5068. The examiner can normally be reached on Mon - Thurs 6:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego F. Gutierrez can be reached on (571) 272-2245. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Diego Gutierrez/
Supervisory Patent Examiner, Art Unit 2831

/D. M. S./
Examiner, Art Unit 2831